

DOCUMENT RESUME

ED 350 560

CS 011 036

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TITLE The Integration of Computer Software with Printed Materials To Enhance the Reading Skills of Middle School Students.
PUB DATE May 92
NOTE 52p.; M.S. Practicum, Nova University. Best available copy.
PUB TYPE Dissertations/Theses - Practicum Papers (043)
EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Computer Assisted Instruction; *Computer Software; Instructional Effectiveness; Junior High Schools; Middle Schools; *Reading Attitudes; *Reading Games; *Reading Improvement; *Reading Skills; *Remedial Reading
IDENTIFIERS Middle School Students; *Printed Materials

ABSTRACT

A practicum described a strategy involving the integration of computer software reading games with traditional printed texts to improve student reading scores and attitudes toward reading. A target group of five seventh-grade remedial reading students participated in the study. The two computer software programs, "Super Solvers Midnight Rescue" and "Stickybear Reading Comprehension" were used along with state adopted texts to provide instruction and reinforcement in developing reading comprehension skills. Following teacher- and text-generated instruction, students completed three to four sessions on the computer each week. Although the desired outcomes regarding increased reading levels were not fully reached, there were significant gains made within the target group. Results indicated that the target students developed positive attitudes toward reading and increased reading scores as well. Findings suggest that the integration of computer software reading games with printed instructional materials can be utilized to increase reading scores and to effect positive attitudes toward reading. (Six tables of data are included; 23 references, a parent/student reading log, a structured reading autobiography form, the letter to parents, and brief descriptions of the two software programs are attached.) (RS)

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ED350560

THE INTEGRATION OF COMPUTER SOFTWARE WITH
PRINTED MATERIALS TO ENHANCE
THE READING SKILLS OF MIDDLE SCHOOL STUDENTS

BY

GAYNELLE O. DIXON

A PRACTICUM REPORT

Submitted to the Faculty of the Center
for the Advancement of Education
of Nova University in partial
fulfillment of the
requirements for
the degree of
Master of Science

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Abstract

A program to enhance student reading scores through the integration of computer software with traditional printed materials.

Dixon, Gaynelle O., 1992. Practicum Report , Nova University, The Center for the Advancement of Education. Descriptors Reading/Reading Achievement/Reading Comprehension/Computer Assisted Instruction/Computer Uses in Education/Parent Student Relationship/Critical Thinking.

This practicum describes a strategy involving the integration of computer software reading games with traditional printed texts to improve student reading scores and attitudes toward reading. A target group of five Remedial Reading students participated in the study. The two computer software programs, Super Solvers Midnight Rescue (The Learning Corp., 1989) and Stickybear Reading Comprehension (Optimum Resources Inc., 1989) were used along with state adopted texts to provide instruction and reinforcement in developing reading comprehension skills. Following teacher and text generated instruction students completed 3-4 sessions on the computer each week.

Although the desired outcomes regarding increased reading levels were not fully reached, there were significant gains made within the target group. The results indicated that the target students developed positive attitudes toward reading and increased reading scores as well. It was concluded that the integration of computer software reading games with printed instructional materials can be utilized to increase reading scores and to effect positive attitudes toward reading.

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Chapter I

Purpose

The urban school site at which this practicum was implemented is located in a metropolitan area of the southeastern United States. The school consisting of grade levels seven through nine currently has an enrollment of 629 students. The school population is comprised of 23 percent African-American students, 65 percent Caucasian students, .07 percent Hispanic students, .04 percent Asian students and .005 percent Indian students.

Eight percent of the population is bused to the school from an inner-city housing project. The households from which the students come are generally headed by single female parents. The low income parents of these students are less involved in the children's education. Another thirty-four percent of the student population is bused from a major military installation. This segment of the student population comes from African American, Caucasian, Hispanic and Asian middle class families. The parents of the students are actively involved in the children's education through P. T. A. affiliation and through a guidance referral program developed by the guidance department of the target school. The remaining 58 percent of the students live in the neighborhood surrounding the target school and in the

the satellite areas of the school. The students, who comprise this segment are from middle to upper middle-class headed by a single parent or two parents with limited involvement in the children's education. Of the total student population, 49 percent are federally connected, with parents employed by the federal government. Forty-seven percent of the students receive free or reduced lunch.

Classes range in sizes averaging 30 - 36 students with the exception of the remedial and gifted classes with class sizes of 5 - 18. Currently, classes reflect the following ability levels, gifted, advanced, basic and compensatory education (CE). Gifted students are identified based upon performance on the Wechsler Intelligence Scale for Children-Revised (WISC-R) (Psychological Corp.,1989). Criteria for placement in other academic classes include teacher recommendation, previous class performance, and performance on the Stanford 8 Achievement Test. Exceptional education classes at the target school include Specific Learning Disability (SLD) and Emotionally Handicapped (EH).

The school staff is extensive. Included on the permanent staff are the school principal, two guidance counselors, two assistant principals, an occupational specialist, and 32 classroom teachers. The itinerant personnel consists of a school psychologist, social worker, speech therapist, and a counselor

for Drug Abuse Coordinating Committee (DACCO).

At the end of each year, the retention rate at the target school ranges from 10 percent to 12 percent. However, the students are given the opportunity to be promoted through the extended school year program. Eighty-five percent of the students are successful and are promoted at the end of the summer session.

This researcher has taught junior high language arts for 20 years and currently teaches seventh grade English, Corrective Reading and Remedial Reading. In addition to Corrective and Remedial Reading classes, the reading program at the target school consists of the P.K. Young Reading Laboratory. In the reading classes traditional printed reading texts are the main core of instruction. The required reading text used for the target group is the Project Achievement series. Other supplementary texts include Be a Better Reader, The Reading Connection, Know Your World Extra and numerous other printed materials to be used at the teacher's discretion. These texts focus on the basic reading skills of inference, drawing conclusions, cause and effect, determining main idea and interpretation of visual materials.

During the four years that the researcher has taught Corrective and Remedial reading classes, the students have been observed as becoming easily bored and frustrated by the repeated

use of printed text only, resulting in low reading unit test scores and negative attitudes toward reading. The students appeared to be more interested in reading assignments when the assignments involved manipulative activities, rather than the repetitive drills contained in the printed texts. However, the required tests consist of short reading selections followed by 5 - 6 comprehension questions. Because of the constant and mundane nature of the reading assignments, very little student/text interaction occurred.

Although the target students do have scheduled sessions in the reading laboratory, the same types of repetitive drills are offered. Again students are assigned short reading selections followed by reading comprehension checks, resulting in little student motivation.

The researcher concluded that although the students received an abundance of practice and drill activities, there was still a lack of motivation and interest on the part of the students to get actively involved in reading.

The group targeted for this study consisted of five seventh grade remedial reading students. Placement in the remedial reading class was based upon the students' performance on the Stanford 8 Test administered during the last nine weeks of the sixth grade year. Students with scores ranging from 1 - 6 on the Stanford 8 Test were recommended for placement in the

remedial class, according to the criteria established by the school system. Parents were notified by letter of the student's placement in the class. Although the class replaced an elective course, there were no negative responses received from parents. The scores achieved by the students on the Stanford 8 range from the fifth percentile to the seventh percentile (Appendix A: p.37). The reading levels of the students as determined by performance on the Slosson Oral Reading Test (SORT) ranged from 5.7 (7th month, 5th grade) to 6.4 (4th month, 6th grade)(Appendix B: p.38). The reading levels of the students should have been 3rd month, 7 grade. The students attached no stigma to being placed in a lower level reading group and viewed the class as a means of improving academic performance in other classes. However, based upon teacher observation this researcher concluded that the students had a negative attitude toward the reading process when made to do daily drills from printed materials.

The core materials selected for use in the reading program for the public school system are the Project Achievement series (Scholastic Inc.,1982) and the Be A Better Reader series (Globe Book Co.,1989). Supplementary materials include the following: The Reading Connection (Educational Developmental Laboratory, 1983), EDL Write on Worksheets: (McGraw-Hill, Inc., 1981), Know Your World Extra (Weekly Reader Corporation, 1992) and Action

Magazine (Scholastic, 1992). These core materials contain numerous activities consisting of repetitive drills designed to assist students in developing the following basic reading skills: comprehension, vocabulary and study skills. Though the target students are able to decode the printed materials used for instruction, the level of comprehension of the materials is low as reflected by tests scores on post unit mastery tests.

Because the target students are geared more toward the tactile and visual-graphic learning styles they tend to become easily bored with the daily routine involving the use of the printed materials as evidenced by teacher observation. When reading instruction includes the use of hands on activities such as board games with colorful pictures, the students tend to become more actively involved in the lesson (Carbo, 1986). The negative effect of the routine use of the printed materials is evident in the results of posttest administered following the completion of units of study. Student performance on mastery tests administered at the conclusion of a reading unit in which the textbook was the core instructional tool used was low. Test items requiring critical thinking such as inferring main idea, drawing conclusions, and analyzing information and application were especially troublesome for the students as evidenced by teacher observation and test scores. Only 40 percent of the target students generally score 80 percent or higher on

posttests. Sixty percent score 75 percent or lower. At least 80 percent of the students should score 80 percent or higher on posttests.

After a period of 12 weeks of reading instruction that integrated computer software with traditional printed materials, 80 percent of the seventh grade remedial reading students were expected to increase reading scores to 80 percent or higher and reading skills by two levels as evidenced by scores achieved on post unit reading tests, the Slosson Oral Reading Test (SORT)(Slosson Educational Publication Inc., 1983) and the Stanford Diagnostic Reading Test (SDRT)(Psychological Corp., 1984). The Stanford Diagnostic Reading Test is not to be confused with the Stanford 8 Test. The reading scores reflected an increase in higher thinking skills developed through application of computer software (Supersolvers Program) in which students utilized clues to draw conclusions which resulted in the solving of mysteries.

Over a period of 12 weeks the target students were expected to demonstrate a 20 percent more positive attitude toward reading activities as evidenced by student response to a projective technique, a structured reading autobiography that revealed how the students view themselves and their reading abilities. Further evidence of increased interest in reading was ascertained by the number of home reading sessions as documented by

completion of the Parent/Student Log (Attachment A p.44).

Over a period of 12 weeks at least 50 percent of parents of the target students were expected to participate in a partnership reading program with the student as measured by completion of the of the Parent/Student Reading Log (Attachment A: p.44). The integration of computer software with traditional instructional reading materials will lead to higher reading scores, increase in reading levels, and positive attitudes toward reading.

Chapter II

Research and Solution Strategy

Though research on the benefits from using computers in reading instruction is inconclusive, there is an abundance of research which supports the effectiveness of computer-assisted instruction (CAI), when used with small groups.

Martin and Hearne (1990) state that while the use of computer software and programming are not practicable means of problem-solving throughout the school day, they do present a uniquely functional approach. Computer software and programming are useful tools for developing cognitive skills. According to Martin and Hearne (1990), educators are reminded that through these modes, transfer of skills, knowledge and attitudes can be facilitated. Through the use of computer software and programming learning experiences ranging from instruction to discovery can be created.

Darter and Phelps (1990) reported that Computer Assisted Instruction (CAI) is effective for a wide variety of reading skills and concept areas and has been effective in raising reading achievement especially when used to supplement regular teacher-presented instruction. Many ideas regarding CAI have been accepted as educators realize how much computers have to offer for the future in the teaching of reading. One of these

ideas is that computer-aided instruction for gifted students allows individualization in enrichment, critical thinking, and other areas of interest. Another is that with the slow learner or the learner with disabilities, when repeated practice is given in areas of difficulty or in new concepts, immediate feedback is given to reinforce correct responses or to point out errors. These advantages are applied to the teaching of reading and offer many possibilities for assisting students in achieving optimum reading development.

Another study provided by Roland (1990) offers further evidence of the effectiveness of CAI. At Stafford Elementary School, in Italy, Texas, fourth, fifth and sixth grade students are steadily improving their scores on a standardized achievement test with the help of a computerized reading program. In 1988, the average score on the reading portion of the Science Research Associates Achievement Test administered at Stafford increased 12 percent and jumped to 15 percent in 1989.

With the increase in CAI, there has developed among educators a concern that students might experience comprehension difficulty when reading text generated by the computers as opposed to text presented in traditional print. However, a print versus microcomputer generated test study conducted by Feldmann and Fish (1987) indicates that there is no need for concern. In the study two urban samples of mixed ethnic groups

were used. One group included 95 students in grades 9 through 12 and the other included 112 8th graders. The students of high ability levels showed no significant differences in performances while low ability students showed significant improvement. The microcomputer did not hinder the performance of poor readers any more than print. However, the microcomputer group scored significantly better than the print group on comprehension.

Duffy et al. (1985) reported on a tutorial project in which Language Skills Computer Assisted Instruction (La SCAI) was chosen to assist volunteer tutors in improving the reading skills of students. The program was designed to raise the reading level and increase the literacy retention of students. Through the use of questionnaires, interviews and observations, the study found that tutors and students wanted the programs as a supplement in remediation of reading difficulties. Another implication of the study is that students will not accept tutoring without a human tutor. CAI must be integrated with text generated instruction.

Hunter and Kearsley (1981) reported in a case study that CAI improved both reading comprehension and achievement. High-risk and remedial students at Bennett College participated in the program. Many students scores in reading were significantly increased when a teacher/technology combination

was used. As a result students were better prepared and completed programs in less time.

Reinking and Schreiner (1985) looked into the effects of computer-text on measures of reading comprehension and reading behavior. Their results showed reading comprehension can be influenced by computer mediated text. Of particular interest were the text manipulations available to some readers in the study. The first groups read traditionally printed pages and were tested on them. The second group read passages on the computer and were tested. The third group read passages from the computer and had several text printed materials available to them if they chose. The fourth group read on line and were required to view all text manipulations before answering the questions. The fourth group made the most progress and improvement. This study supports the contention that computer software when integrated with traditional text printed materials will relieve the processing burden placed on the reader and lead to improved reading comprehension.

Frederiksen et al. (1983) reported substantial improvement in the critical skills, such as phonological decoding, word attack skill development and use of context clues, with the use of learning games and CAI. In the study three game-like microcomputer training systems with critical thinking skills were used. The learning games were found to be an effective way

to build reading skills for secondary students with poor reading skills.

Although the computer is being used widely as an instructional tool in laboratory settings, its use in whole class settings is limited. One reason for this is the high cost of computers and programming. To remedy the problem, CAI can be used in conjunction with the cooperative learning strategy. Balaythy (1987) believes that the computer can be used as a motivational device to provide periodic practice and review on concepts and skills learned previously in whole class formats. Almost all instructional programs benefit from having 2 - 4 students working at the same time on the computer to enhance thinking skills.

Studies have shown that student attitude and achievement are related. Johnston (1990), who believes that students who have good attitudes toward reading will be likely to achieve well in that subject, conducted a study designed to change the negative attitudes of a group of eighth grade literature students toward reading. The study revealed that negative attitudes are often fostered by failure of parents to provide positive models of successful reading behavior. Negative attitudes are also developed when students cannot identify a purpose for reading and when teachers fail to model positive reading behavior in their use of books.

Research shows that Computer Assisted Instruction (CAI) can be useful in changing attitudes toward reading. Bass et al. (1986) reported that CAI resulted in equal or better achievement in less time and with more positive student attitudes than traditional instruction.

Further evidence of the effectiveness of CAI on reading comprehension and attitudes toward reading is provided in a study by Cicchelli and Richards (1983). The writers investigated the changes in teaching and learning behaviors as microcomputer were integrated into the curriculum. Computer use in school has been focused on CAI. However, research on CAI used in isolation has not shown it to be any more effective than traditional instruction. Drill and practice, the most common form of CAI experiences may shorten learning time but may add to student understanding of concepts. Evidence suggests that CAI should not be used in isolation but must integrated with traditional instructional techniques.

Another component in the development of positive attitudes toward reading and learning, parent involvement, can be very instrumental in a specialized reading program. Henderson (1988) notes that programs designed with a strong component of parent involvement produce students who perform better than those who have taken part in other-wise identical programs with less involvement. Parent participation should be encouraged in any

specialized reading program including those utilizing computer technology. Irwin (1988) reported that many software reading programs especially those marketed with "reading" labels, are based upon subskill theories of reading, providing drills and practice on sounds, syllables, and isolated comprehension skills. Though the comprehension skills are important, often focusing on the critical thinking skills of application and evaluation, students benefit little when becoming bored with activities that involve constant drill. However, there is a wide variety of computer software available that incorporates games and problem solving activities which help in developing reading and thinking skills.

Carbo (1986) states that many youngsters in today's classrooms are global/tactual learners. For these students it is important to be taught with "hands on" materials. The majority of reading deficient students are global/tactual learners who have not learned well because they have been taught to read analytically through their visual and auditory sense, rather than globally (holistically) and tactually. Many of these students have been retained because low reading ability makes it difficult for them to function well in any subject. The computer along with its software, is a source that provides "hands on" learning experiences.

Research supports the use of the computer as a supplement

to text-based instruction, for improving reading comprehension, fostering positive attitudes toward reading and increasing interaction among students. Research has shown that students tend to favor software that provides activities which involve the critical thinking skills of making inferences, drawing conclusions, making judgements and problem-solving such as games and creative input as opposed to activities that require repeated drill on reading subskills. Computer software and programming can be used effectively with global/tactual learners such as the students in the target group. The use of the computer, along with text-based instruction, and parental involvement can foster positive attitudes about reading thus leading to further development of the cognitive reading process.

Several strategies were incorporated in this practicum. The core printed texts adapted for use with target students were intergrated with computer software which featured games that required students to read passages from which they drew conclusions, make inferences and made judgements in order to win the games. Students alternated between use of the computer games and the printed texts which provided relief from constantly writing out the repetitive drills found in the tests. The use of the computer provided the hands on kind of activity needed for the target students.

A Parent/Student Log was used to provide a vehicle for

parent involvement through documentation of student reading and discussion sessions completed at home.

Chapter III

Methodology

Prior to the twelve week implementation of this practicum letters were sent to the parents of the targeted students requesting assistance in home monitoring of students' reading activities (Attachment C:p.46). The parents of students who did not return signed letters were contacted by phone. Initially one parent of the 5 chose not to participate. However, after contacted by phone and receiving additional information about the activity the parent consented to participation.

To determine the students' attitudes toward reading, a structured reading autobiography was administered during the first week of implementation (Attachment B:p.45). The structured reading autobiography contained questions which revealed how the students feel about their reading problems, and themselves.

Copies of the Parent/Student Reading Log were sent home to the parents' of the students that agreed to participate (Attachment A: p.44). The researcher completed the reading logs for the students whose parents chose the option of non-participation. Teacher input was based upon observation of students involved in reading activities during extra class time.

The researcher made arrangements with the school media specialist to bring the students to the library one time per week, preferably on Fridays, to check out recreational reading

materials. Students were encouraged to check out both fiction and nonfiction books of interest to them. In addition, students were allowed to read recreationally after class assignments were completed. The students were enthusiastic about the at home reading project and very competitive. Each week the students were assigned short reading selections from the county adopted texts as well as supplementary texts. Following the reading of the selections the students were required to answer comprehension questions generated from the selections. The core printed materials used by the students were Project Achievement and Be a Better Reader for written activities. The main supplementary materials used were Know Your World Extra magazine, and The Reading Connection.

Integrated with the printed materials was use of the computer program, Super Solvers (The Learning Corporation, 1989) and Stickybear Reading Comprehension (Optimum Resources Inc., 1987). Initially students were to complete computer sessions of 15 minutes each, four times a week; however, because of time constraints one of the four computer sessions was reduced to 10 minutes each.

Students worked diligently to complete the printed texts assignments to get turns at the computer. The Super Solvers program involved the following comprehension skills: reading for main idea, recalling facts drawing inferences and building

vocabulary. Each Super Solvers Midnight Rescue game contained a problem that the players had to solve in order to win. The games required the students to gather, organize and analyze information leading to a final deductive conclusion that revealed the true identity of the Master of Mischief. The program included over 200 reading selections with more than 400 clue questions. As more points were earned students could move up in rank, going from trainee (0 points) to junior (5,000 points), then senior (30,000 points) and so on to Champion (500,000 points). Four of the five students earned over 20,000 points, and one earned only 6,150 points. The students liked the challenge and the change from the routine use of the printed materials. The students did not enjoy the Stickybear program as well as Super Solvers. The format was more similar to the printed text form and did not involve the competitive aspect. In the program, the students were given reading selections which varied in reading difficulty and were asked comprehension questions focusing on main ideas, inference, drawing conclusions, vocabulary, and visional/graphics skills.

At the end of each week of reading activities in which students worked from the printed text along with the computer programs, students were given a unit test of 20-25 questions pertaining to the skill being covered. The students generally scored seventy-five percent or higher on the unit tests

(Appendix C: p.39) as compared to scores of sixty-five to seventy-five percent prior to the implementation of the practicum.

Students were required to turn in the Parent/Student Reading logs at the beginning of each week. This too created a sense of competitiveness which often is not seen in reading ^efficient students. Students were asked to discuss randomly selected log entries to ensure that reading was taking place and parents were requested to sign the forms only if they had observed students reading and discussed the reading matter with them. Eighty percent of the parents participated in the home reading program although 100 percent originally stated that they would. Although the desired outcome, the reading of at least three home reading sessions per week, was not reached by all students the results were good. Prior to implementation of the project, none of the five target students were reading at home. At the conclusion of the project four of the five students were completing some reading at home (Appendix D: p.40).

When students were administered the Structured Reading Autobiography at the conclusion of the practicum there was a significant increase in the number of yes responses to the survey. At the initiation of the project, students answered 28 (56%) affirmative to the survey; at the close, students affirmative answers increased from 28 to 41 (82 percent)

- * Give out letter
- * Administer Stanford Diagnostic Test (SDRT);
Documental results
- * Administer the structured reading autobiography
- * Call parents who do not respond to letter
- * Arrange schedule of library visit with the
media specialist

Week 2

- * Give instruction on identification of details
and main ideas
- * Assign activities from Project Achievement
(Scholastic, 1982) series and Be A Better
Reader (The Globe Co., 1989)
- * Assign as cooperative learning activity,
group reading from "Know Your World Extra"
magazine
- * Students will complete computer sessions
from Super Solvers Program
(Optimum Resources Inc., 1987)

Week 3

- * Administer posttest on details and main idea
- * Provide instruction on inference
- * Work from Project Achievement (Scholastic,
1982) and Be A Better Reader (The Globe
Company, 1989)
- * Students complete sessions on the computer

from Super Solvers Program

- * Library visitation
- Week 4
- * Continue instructions on inference
 - * Assign activities from the Reading Connection and Project Achievement (Scholastic, 1982)
 - * Read and discuss selections from "Know Your World Extra" magazine
 - * Students complete computer sessions from Super Solvers Program (Optimum Resources Inc., 1987)
- Week 5
- * Administer posttest on inference
 - * Document posttests scores
 - * Give instruction on interpretation of visual materials ie. graphs, maps, tables.
 - * Assign activity sheets and activities from Project Achievement (Scholastic, 1982)
 - * Computer sessions-Super Solvers (The Learning Corp, 1989) computer program
 - * Library visitations
- Week 6
- * Administer posttest on interpretation of visual materials
 - * Documentation of post test scores

- * Assign reading selections from the
Reading Connection
- * Assign activity sheets for selections
- * Students read aloud play from Know Your World
Extra magazine
- * Students complete critical thinking skills
questions for discussion
- * Complete computer sessions from Super Solvers
computer program (The Learning Corp., 1989)
- Week 7 * Administer test on comprehension of visual
materials
- * Documentation of posttest scores
- * Instruction on cause and effect
- * Completion of activity sheets (Cause
and Effect)
- * Students read from "Know Your World Extra"
magazine
- * Completion of computer sessions-Stickvbear
Reading Comprehension (Optimum Resources Inc.,
1987) program
- * Library visitation
- Week 8 * Administer posttest on cause and
effect
- * Document test scores

- * Instruction on context clues
 - * Complete activities from the Reading Connection series
 - * Thinking Skills Problems (activity sheets)
 - * Computer sessions from Super Solvers (The Learning Corp., 1989) program
- Week 9
- * Administer posttest on context clues
 - * Document posttest scores
 - * Give instruction on predicting outcomes and drawing conclusions
 - * Assign activity sheets
 - * Computer sessions from Super Solvers (The Learning Corp., 1989) program
 - * Library visitations
- Week 10
- * Administer posttest on predicting outcomes and drawing conclusions
 - * Document test results
 - * Complete activities to reinforce identifying main idea and locating details in a selection
 - * Computer session, Stickybear Reading Comprehension (Optimum Resources Inc., 1987) program
- Week 11
- * Review all skills taught over last

10 weeks

- * Collect Parent/Student Reading Records
- * Computer sessions, Stickybear Reading Comprehension (Optimum Resources Inc., 1987) program

Week 12

- * Administer structured reading autobiography as post evaluative tool
- * Administer Stanford Diagnostic Reading Test (SDRT) as post evaluative tool
- * Compile results of reading log record, structured autobiography, Stanford Diagnostic Reading Test (SDRT) and unit post tests.

Chapter IV

Results

After a twelve week practicum designed to improve reading scores through intergration of computer software with traditional printed materials, the researcher hoped to obtain positive results from four objectives. The researcher desired to increase the reading scores on post unit tests to 80 percent by 80 percent of the target students following instruction from printed materials with follow-up activities from the computer software. Only 20 percent of the target students increased average unit post test scores to 80 percent or higher (Appendix C:p.39). However, 100 percent of the students made increases from the average 65 percent to 75 percent earned on unit testss prior to implementation to scores averaging 76.5 percent to 83.2 percent during implementation.

Although students did not reach the desired outcomes of increasing 80 percent of the students reading skills by two grade levels, as evidenced by the Slosson Oral Reading Test (SORT), some gains were made by 100 percent of the students (Appendix B: p.38). The Stanford Diagnostic Reading Test (SDRT) scores ranged from an average of 44 percent - 57 percent when administered prior to the integration of computer software with traditional printed materials (Appendix F:p.42). When the (SDRT) was administered at the conclusion of the practicum,

students average scores ranged from 49% to 67% (Appendix F: p.42). Although the desired average scores of 80 percent or above were not reached, gains were made (Appendix F: p.42).

The researcher desired that during the twelve week implementation the target students attitudes toward leisurely reading would become more positive as reflected by a 20 percent increase in yes answers on the structured reading autobiography. When the structured reading autobiography was administered at the conclusion of the practicum there was an increase of 26 percent in the yes response (Appendix E: p.41).

Further verification of an increase in positive attitude toward reading was shown by the post implementation results of the Parent/Student Reading Log (Appendix D: p.40) Although only 20 percent of the students completed the desired at home reading sessions of 3 - 4 per week, 60 percent of the target students made increases in at home readings ranging from 1.5 to 2.5 up from 0.

Although 100 percent of the parents originally agreed to participate in the partnership reading programs, only 80 percent of the parents participated throughout the practicum. The desired outcome was that at least 50 percent participate. The parents did become activity involved with the recreational reading of the students leading to a competitiveness among the students.

The researcher concludes that although the desired outcomes were not fully reached through the integration of computer software with printed teaching materials, significant gains were made in each objective. Some variables which influenced the results were time restraints incurred due to schoolwide operations. The restraints often resulted in computer sessions being shortened or library time being limited. The students who made minimal gains in reading skill development were the students who were frequently absent from school and therefore had limited time on the computer. The students who showed little or no increase in reading interest were the students who were often absent from school. The researcher feels that with more computer software and equipment made available to the students, the learners' time can be spent more equitably between utilization of printed materials and computer usage.

The researcher further concludes that reading software involving a game format in which, points can be earned to allow students to progress from one level to another is more appealing to students. It creates a spirit of competitiveness that leads to increased development of reading skills.

Chapter V

Recommendations

The integration of computer software with traditional printed instructional materials can be used successfully to improve reading scores of middle school students. Although the gains made on reading tests scores were not as extensive as the researcher had desired, the significance of any gains made cannot be overlooked. With the current emphasis on the lack of development of critical reading skills, even minute improvement is desirable. With reading courses being considered as required components of the academic teams in the middle schools, this strategy could be included in the development of the reading curriculum.

In schools where a lack of parental involvement exists, the Parent/Student Log could be used as a component of a program to increase parental participation in the education of the students.

As a result of the gains achieved with the implementation of this study, the researcher recommends the following components of the program along with modifications:

1. Enlist the assistance of the school principal in securing an adequate number of computers for the classrooms in order to achieve optimum results from the program.

2. Include the strategy in lesson plans for reading comprehension.
3. Involve the school librarian in setting up a computer with reading comprehension games in the library so that the strategy can be continued outside of the classroom.
4. Implement the program at the beginning of the school term to be continued throughout the school year.
5. Secure computer software with a game format as students reacted more favorably to this type as opposed to programs which involved the routine reading of passages followed by comprehension questions.
6. Involve parents as partners in the learning process of the students.
7. Increase class instruction time for utilization of the strategy by minimizing the amount of time students are called out of class.

The researcher will continue the integration of computers software with traditional materials throughout the year to foster improvement in academic performance and to effect a positive attitude toward reading.

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APPENDICES

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APPENDIX A
Stanford - 8 Test Results

<u>Student's Name</u>	<u>Scores</u>
Student #1	23
Student #2	5
Student # 3	6
Student # 4	9
Student # 5	13

APPENDIX B

Results of Slosson Oral Reading Test

Student's Name	Reading Level	Reading Level
	Pre Test	Post Test
Student #1	5.7	6.4
Student #2	7.4	7.8
Student #3	6.8	7.4
Student #4	5.7	6.2
Student #5	7.1	7.8

APPENDIX C

Unit Post Tests Results

Student Name	Main Idea	Inference	Visual Materials	Cause and Effect
Student #1	75%	73%	78%	82%
Student #2	90%	77%	75%	66%
Student #3	75%	77%	75%	82%
Student #4	80%	70%	75%	91%
Student #5	85%	73%	86%	91%

	Context Clues	Making Prediction	Drawing Conclusions	Overall Average
Student #1	80%	76%	72%	76.5%
Student #2	88%	80%	76%	78.8%
Student #3	76%	72%	30%	76.7%
Student #4	76%	80%	76%	78.2%
Student #5	89%	84%	76%	93.2%

APPENDIX D

Parent Student Reading Log

Post Implementation Results

Student's Name	Average # Unrequired Readings at Home Prior to Implementation	Average # at Home Readings at Close of Project
Student #1	0	3.3
Student #2	0	0
Student #3	0	1.8
Student #4	0	1.5
Student #5	0	2.5

APPENDIX E

Structured Reading Autobiography Results

Before Implementation of Project

Yes Responses	No Responses
28	22

After Implementation of Project

Yes Responses	No Responses
41	9

APPENDIX F

Stanford Diagnostic Reading Test Pretest Results

Student Name	Reading Comprehension	Phonetic Analysis	Vocabulary	Average Score
Student #1	68%	60%	25%	51%
Student #2	72%	40%	28%	47%
Student #3	50%	70%	45%	55%
Student #4	52%	50%	30%	44%
Student #5	53%	50%	65%	57%

Post Test Results

Student Name	Reading Comprehension	Phonetic Analysis	Vocabulary	Average Score
Student #1	75%	67%	36%	59%
Student #2	78%	45%	35%	52%
Student #3	55%	78%	54%	62%
Student #4	58%	55%	34%	49%
Student #5	63%	60%	70%	67%

ATTACHMENTS

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ATTACHMENT A
Parent/Student Reading Log

Student's Name _____

Subject of Reading Selection	Date Read	Parent's Signature
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ATTACHMENT B
Structured Reading Autobiography

Name	Grade	Teacher	Yes	No
1. Were you a good reader when you were in primary grades?			_____	_____
2. Do you enjoy reading for pleasure?			_____	_____
3. Do you have a library card?			_____	_____
4. Have you been to the public or school library within the last month?			_____	_____
5. Do you think you were a good reader in elementary school?			_____	_____
6. Would you rather watch television or read?			_____	_____
7. Do you think you are a good reader now?			_____	_____
8. Are there books and magazines in your home for you to read?			_____	_____
9. Do you like to read assignments in social studies textbooks?			_____	_____
10. Do you read the newspaper regularly?			_____	_____

ATTACHMENT C

Dear Parent(s) of _____

Your child will be participating in a specialized reading program. This program is designed to increase his reading scores and to foster a positive attitude toward required reading as well as recreational reading.

Your support is solicited in this effort through monitoring of your child's reading habits at home. A reading record sheet will be sent home at the beginning of the program. On the record sheet the student will indicate the subject of the reading material and you are asked to verify that the reading took place by indicating the date and giving your signature. Reading matter may include comic books, trade magazine, paperbacks, and newspaper.

Please indicate by checking yes or no if you will participate and sign at the bottom.

Parents' Signature _____

Yes _____ No _____

Sincerely,

Gaynelle O. Dixon

English Teacher

ATTACHMENT D

Stickybear Reading Comprehension

(Optimum Resource Inc., 1987)

(Software)

Format

The program will present selections to read. The user may move backward and reread any section of the story. There is no time limit. A story may be reviewed by scrolling back and forth as long as necessary. After reading is completed, the student will be presented with questions requiring critical thinking such as drawing conclusions making inferences, and making judgements. When all the questions have been answered for each story, the program will ask "Do you wish to continue? "Stickybear Reading Comprehension will adjust itself automatically as the student finishes each exercise and progresses through various levels of difficulty.

ATTACHMENT E

Super Solvers

(The Learning Corp., 1989)

Midnight Rescue

(Software)

Content:

Super Solvers combines an arcade game format with the graphic and instructional capabilities of the computer to develop reading and thinking skills. Students are required to solve a school mystery by reading for clues and collecting facts to out think the opponent. The program develops reading and thinking skills such as main idea, recalling key facts, inferring meaning, and drawing deductive conclusions. The software contains over 200 readings which include short stories, posters, and newsletters.